

CLAIMS

We claim:

1. An isolated polypeptide comprising an extracellular domain, wherein the extracellular domain comprises amino acid residues 26 to 315 of the amino acid sequence of SEQ ID NO:2.

2. The isolated polypeptide of claim 1, wherein the polypeptide further comprises a transmembrane domain that resides in a carboxyl-terminal position relative to the extracellular domain, wherein the transmembrane domain comprises amino acid residues 316 to 340 of SEQ ID NO:2.

3. The isolated polypeptide of claim 2, wherein the polypeptide further comprises an intracellular domain that resides in a carboxyl-terminal position relative to the transmembrane domain, wherein the intracellular domain comprises amino acid residues 341 to 826 of SEQ ID NO:2.

4. The isolated polypeptide of claim 1, wherein the polypeptide further comprises a signal secretory sequence that resides in an amino-terminal position relative to the extracellular domain, wherein the signal secretory sequence comprises amino acid residues 1 to 25 of the amino acid sequence of SEQ ID NO:2.

5. An isolated polypeptide, comprising an amino acid sequence that is at least 70% identical to the amino acid sequence of SEQ ID NO:2, wherein the isolated polypeptide specifically binds with an antibody that specifically binds with a polypeptide consisting of the amino acid sequence of SEQ ID NO:2.

6. The isolated polypeptide of claim 5, wherein the isolated polypeptide comprises an amino acid sequence that is at least 80% identical to the amino acid sequence of SEQ ID NO:2.

7. The isolated polypeptide of claim 5, wherein the isolated polypeptide comprises an amino acid sequence that is at least 90% identical to the amino acid sequence of SEQ ID NO:2.

8. The isolated polypeptide of claim 5, comprising the amino acid sequence of SEQ ID NO:2.

9. An isolated nucleic acid molecule that encodes a Zsig43 polypeptide, wherein the nucleic acid molecule is selected from the group consisting of (a) a nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO:3, and (b) a nucleic acid molecule that remains hybridized following stringent wash conditions to a nucleic acid molecule consisting of either the nucleotide sequence of SEQ ID NO:1, or the complement of SEQ ID NO:1.

10. The isolated nucleic acid molecule of claim 9, wherein any difference between the amino acid sequence encoded by the nucleic acid molecule and the corresponding amino acid sequence of SEQ ID NO:2 is due to a conservative amino acid substitution.

11. The isolated nucleic acid molecule of claim 9, comprising the nucleotide sequence of nucleotides 93 to 2495 of SEQ ID NO:1.

12. A vector, comprising the isolated nucleic acid molecule of claim 9.

13. An expression vector, comprising the isolated nucleic acid molecule of claim 9, a transcription promoter, and a transcription terminator, wherein the promoter is operably linked with the nucleic acid molecule, and wherein the nucleic acid molecule is operably linked with the transcription terminator.

14. A recombinant host cell comprising the expression vector of claim 13, wherein the host cell is selected from the group consisting of bacterium, yeast cell, fungal cell, insect cell, mammalian cell, and plant cell.

15. A method of using the expression vector of claim 13 to produce Zsig43 protein, comprising culturing recombinant host cells that comprise the expression vector and that produce the Zsig43 protein.

16. An antibody or antibody fragment that specifically binds with the polypeptide of claim 8.

17. A method of detecting *Zsig43* gene expression in a biological sample, comprising the steps of :

(a) contacting a *Zsig43* nucleic acid probe under hybridizing conditions with either (i) test RNA molecules isolated from the biological sample, or (ii) nucleic acid molecules synthesized from the isolated RNA molecules, wherein the probe has a nucleotide sequence comprising a portion of the nucleotide sequence of SEQ ID NO:1, or its complement, and

(b) detecting the formation of hybrids of the nucleic acid probe and either the test RNA molecules or the synthesized nucleic acid molecules,

wherein the presence of the hybrids indicates the presence of *Zsig43* RNA in the biological sample.

or,

(a') contacting the biological sample with an antibody, or an antibody fragment, of claim 16, wherein the contacting is performed under conditions that allow the binding of the antibody or antibody fragment to the biological sample, and

(b') detecting any of the bound antibody or bound antibody fragment.

18. An isolated polypeptide, comprising the amino acid sequence of amino acid residues 26-315 of SEQ ID NO:2.

19. An isolated nucleic acid molecule that encodes the polypeptide of claim 18.

20. An antibody that specifically binds with the isolated polypeptide of claim 18.